

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A ~~monitoring computer~~ system comprising:
~~a cluster of application servers communicatively coupled on a network to serve applications over the network to a plurality of clients, each of the application servers comprising server nodes;~~
an application server having a plurality of application levels including management level, agent level, and instrumentation level, the agent level having a plurality of management bean ("MBean") servers-server associated with the server nodes of the application-servers server, the MBean servers-comprising-server to provide monitor MBeans being generated by a monitor service, the monitor MBeans are arranged in-being arranged in a hierarchical monitor tree having a plurality of nodes, wherein each monitor MBean is represented as-representing a node of the monitor tree; and
the instrumentation level having resource MBeans associated with-and their corresponding resources-capable of being monitored, each resource MBean capable of monitoring its uniquely identified corresponding resource exclusively at the instrumentation level,-each of the resource MBeans-collecting-, each resource MBean being further capable of collecting monitoring data relating to its uniquely identified corresponding associated-resource and providing the monitoring data to the monitor MBeans, wherein the resource MBeans are mapped to the monitor MBeans within-the via nodes of the monitor tree to establish a link between each of the monitor MBeans and its uniquely identified corresponding resource-such that each monitor MBean at the agent level receives-is capable of receiving monitoring data relating to its-corresponding-to a

resource from its associated ~~corresponding~~ resource MBean at the instrumentation level;

and

~~notification logic to generate a notification in response to certain specified events associated with the resources, the notification logic distributing notifications across all, or a subset of, the server nodes of the cluster.~~

2. (Cancelled)

3. (Currently Amended) The computer system as in claim 1 ~~further comprising wherein the application sever further comprising:~~

~~a dispatcher node configured within each application server to distribute client requests to each of the server nodes, the dispatcher having a dedicated MBean server associated therewith to monitor resources within the dispatcher~~ with the management MBean server.

4. (Cancelled)

5. (Cancelled)

6. (Cancelled)

7. (Currently Amended) The system as in claim 1 ~~further comprising wherein the management level comprising~~ a graphical visual administration interface ~~configured tool to generate and provide graphical images representing the notification monitoring data.~~

8. (Cancelled)

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Currently Amended) A method comprising:

employing a plurality of application levels within an application server, the application levels including management level, agent level, and instrumentation level, the agent level having associating a plurality of a management bean ("MBean") servers with a respective plurality of application server associated with server nodes of the application server, each of the MBean servers comprising server to provide monitor MBeans being generated by a monitor service, the monitor MBeans being arranged in a hierarchical monitor tree having each monitor MBean representing and having registered therewith resource MBeans, wherein each of the resource MBeans, the application server nodes together forming a cluster of application servers to serve applications over a network to a plurality of clients, and the monitor MBeans are arranged in a hierarchical monitor tree having a plurality of nodes, wherein each monitor MBean is represented as a node of the monitor tree; and

employing resource MBeans and their corresponding resources at the instrumentation level, each resource MBean capable of monitoring its uniquely identified corresponding resource exclusively at the instrumentation level, each resource MBean being further capable of collecting associated with resources capable of being monitored, each of the resource MBeans collects monitoring data relating to its uniquely identified corresponding associated resource and providing the monitoring data to the monitor MBeans associating the resource MBeans with resources capable of being monitored, each of the resource MBeans collecting monitoring data relating to its associated resource, wherein the resource MBeans are mapped to the monitor MBeans via nodes of within the monitor tree to establish a link between each of the monitor MBeans and its uniquely identified corresponding resource such that each monitor MBean receives at the agent level is capable of

~~receiving monitoring data relating to its corresponding to a resource from its associated corresponding resource MBean at the instrumentation level; and~~

~~generating a notification in response to certain specified events associated with the resources, the notification being distributed across all, or a subset of, the server nodes of the cluster.~~

13. (Cancelled)

14. (Currently Amended) The method as in claim 12 ~~wherein each application server comprises a plurality of server nodes and at least one dispatcher, the method further comprising:~~

~~employing a dispatcher to distribute client requests to each of the server nodes, the dispatcher having a dedicated associating an MBean server associated with the management MBean server with each dispatcher, each of the MBean servers having registered therewith the resource MBeans; and~~

~~associating the resource MBeans with a plurality of respective dispatcher resources, each of the resource MBeans collecting and reporting monitoring data for its associated dispatcher resource.~~

15. (Cancelled)

16. (Cancelled)

17. (Cancelled)

18. (Currently Amended) The method as in claim 12 further comprising: generating and providing graphical images representing the monitoring data via a graphical visual administration tool at the management level interface configured to generate graphical images representing the notification.

19. (Cancelled)

20. (Cancelled)

21. (Cancelled)

22. (Currently Amended) An article of manufacture including program code which, when executed by a machine, causes the machine to perform the operations of:

employing a plurality of application levels within an application server, the application levels including management level, agent level, and instrumentation level, the agent level having a~~associating a plurality of~~ management bean ("MBean") servers with a respective plurality of application server associated with server nodes of the application server, each of the MBean servers ~~comprising~~ server to provide monitor MBeans being generated by a monitor service, the monitor MBeans being arranged in a hierarchical monitor tree having each monitor MBean representing and having registered therewith resource MBeans, the application server nodes together forming a cluster of application servers to serve applications over a network to a plurality of clients, and the monitor MBeans are arranged in a hierarchical monitor tree having a plurality of nodes, wherein each monitor MBean is represented as a node of the monitor tree;

employing resource MBeans and their corresponding resources at the instrumentation level, each resource MBean capable of monitoring its uniquely identified corresponding resource exclusively at the instrumentation level, each resource MBean being further capable of collecting associated with resources capable of being monitored, each of the resource MBeans collects monitoring data relating to its uniquely identified corresponding associated resource and providing the monitoring data to the monitor MBeans~~associating the resource MBeans with the~~

~~resources capable of being monitored, each of the resource MBeans collecting monitoring data relating to its associated resource, wherein the resource MBeans are mapped to the monitor MBeans via nodes of within the monitor tree to establish a link between each of the monitor MBeans and its uniquely identified corresponding resource such that each monitor MBean receives at the agent level is capable of receiving monitoring data relating to its corresponding a resource from its associated corresponding resource MBean at the instrumentation level; and~~

~~generating a notification in response to certain specified events associated with the resources, the notification being distributed across all, or a subset of, the server nodes of the cluster.~~

23. (Cancelled)

24. (Currently Amended) The article of manufacture as in claim 22 wherein each application server comprises a plurality of server nodes and at least one dispatcher, the article of manufacture comprising additional program code to cause the machine to perform the operations of:

employing a dispatcher to distribute client requests to each of the server nodes, the dispatcher having a dedicated associating an MBean server with each dispatcher, each of the MBean servers having registered therewith the resource MBeans associated with the management MBean server; and

associating the resource MBeans with a plurality of respective dispatcher resources, each of the resource MBeans collecting and reporting monitoring data for its associated dispatcher resource.

25. (Cancelled)

26. (Cancelled)

27. (Cancelled)

28. (Currently Amended) The article of manufacture as in claim 22 wherein the article of manufacture comprising additional program code to cause the machine to perform the operations of further comprising: generating and providing graphical images representing the monitoring data via a graphical visual administration interface configured tool at the management level to generate graphical images representing the cluster-wide notifications.

29. (Cancelled)

30. (Cancelled)

31. (Cancelled)

32. (New) The computer system as in claim 1, wherein the monitor MBeans to receive the monitoring data from the resource MBeans via passive instrumentation, the passive instrumentation including the resource MBeans automatically providing the monitoring data to the monitor MBeans.

33. (New) The computer system as in claim 1, wherein the monitor MBeans to receive the monitoring data from the resource MBeans via active instrumentation, the active instrumentation including the monitor MBeans to actively collect the monitoring data from the resource MBeans.

34. (New) The computer system as in claim 33, wherein the active instrumentation is performed upon occurrence of a specified event associated with the resources, the specified event including one or more of reaching a specified time period, reaching a specified change in the monitoring data, receiving, at a resource MBean, a random request from a monitor MBean, reaching a critical resource value, and a resource becoming unavailable.

35. (New) The computer system as in claim 34, the application server to generate a notification in response to the occurrence of a specified event associated with the resources, the notification being distributed across all, or a subset of, a cluster of servers having application servers coupled to the application server.

36. (New) The method as in claim 12, wherein the monitor MBeans to receive the monitoring data from the resource MBeans via passive instrumentation, the passive instrumentation including the resource MBeans automatically providing the monitoring data to the monitor MBeans.

37. (New) The method as in claim 12, wherein the monitor MBeans to receive the monitoring data from the resource MBeans via active instrumentation, the active instrumentation including the monitor MBeans to actively collect the monitoring data from the resource MBeans.

38. (New) The method as in claim 37, wherein the active instrumentation is performed upon occurrence of a specified event associated with the resources, the specified event including one or more of reaching a specified time period, reaching a specified change in the monitoring data, receiving, at a resource MBean, a random request from a monitor MBean, reaching a critical resource value, and a resource becoming unavailable.

39. (New) The method as in claim 38, the application server to generate a notification in response to the occurrence of a specified event associated with the resources, the notification being distributed across all, or a subset of, a cluster of servers having application servers coupled to the application server.

40. (New) The article of manufacture as in claim 22, wherein the monitor MBeans to receive the monitoring data from the resource MBeans via passive

instrumentation, the passive instrumentation including the resource MBeans automatically providing the monitoring data to the monitor MBeans.

41. (New) The article of manufacture as in claim 22, wherein the monitor MBeans to receive the monitoring data from the resource MBeans via active instrumentation, the active instrumentation including the monitor MBeans to actively collect the monitoring data from the resource MBeans.

42. (New) The article of manufacture as in claim 41, wherein the active instrumentation is performed upon occurrence of a specified event associated with the resources, the specified event including one or more of reaching a specified time period, reaching a specified change in the monitoring data, receiving, at a resource MBean, a random request from a monitor MBean, reaching a critical resource value, and a resource becoming unavailable.

43. (New) The article of manufacture as in claim 42, the application server to generate a notification in response to the occurrence of a specified event associated with the resources, the notification being distributed across all, or a subset of, a cluster of servers having application servers coupled to the application server.